Exam: Function Reflections (Practice version 43)

1. Let function f be defined by the polynomial below:

$$f(x) \;=\; 9x^5 + 5x^4 - 6x^3 - 3x^2 - 2x + 7$$

Draw lines that match each function reflection with its polynomial:

| Reflections	Polynomials

$-f(-x)$ •   • $-9x^5 - 5x^4 + 6x^3 + 3x^2 + 2x - 7$

$-f(x)$ •   • $-9x^5 + 5x^4 + 6x^3 - 3x^2 + 2x + 7$

$f(-x)$ •   • $9x^5 - 5x^4 - 6x^3 + 3x^2 - 2x - 7$

2. In each xy plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The x axis is horizontal and the y axis is vertical (as typical), and the scale is equal on both axes.

- $y = g(x)$
- $y = -g(x)$

- $y = h(x)$
- $y = h^{-1}(x)$

- $y = m(x)$
- $y = -m(-x)$

- $y = p(x)$
- $y = p(-x)$
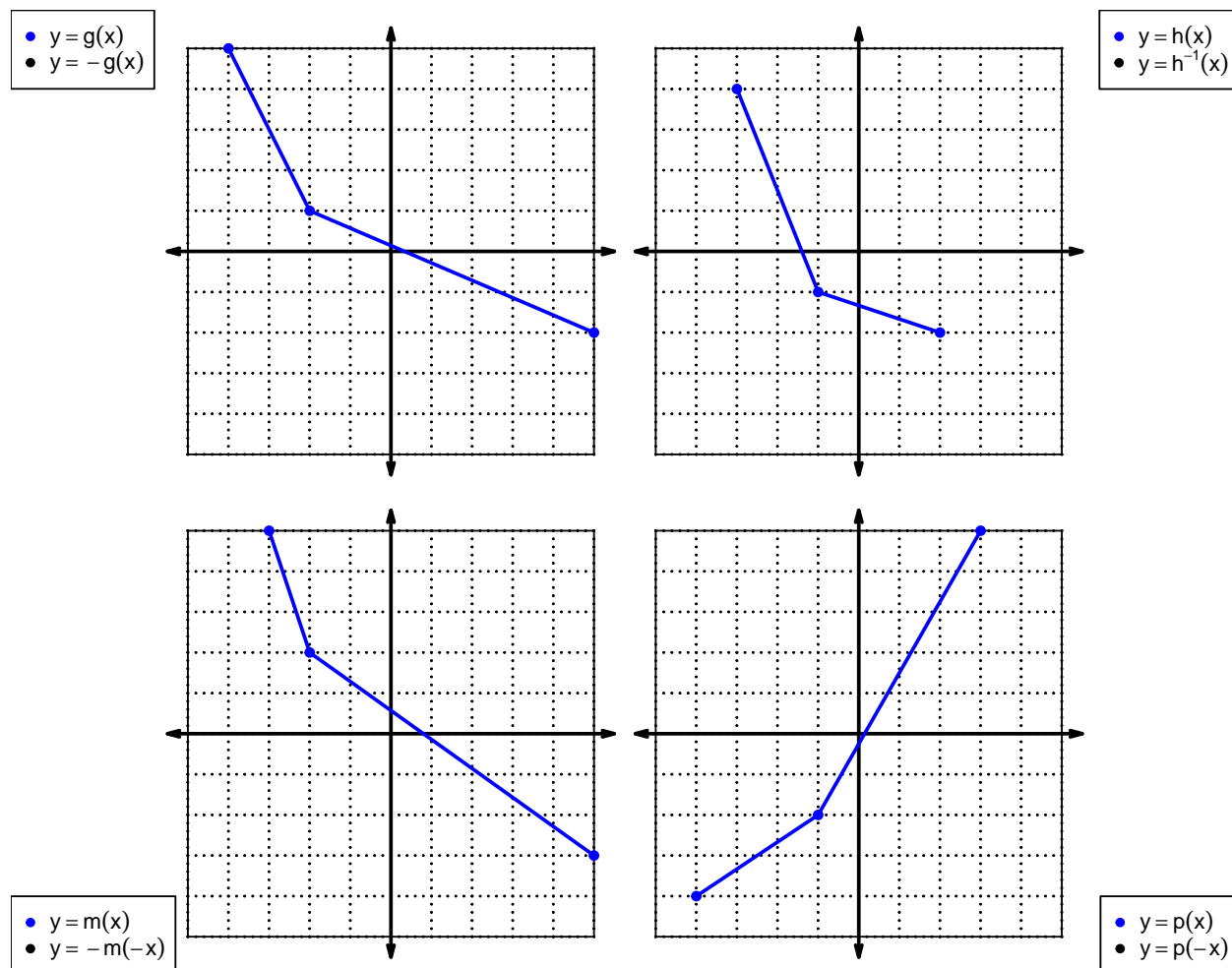
Exam: Function Reflections (Practice version 43)

For all questions on this page, the functions f, g, and h are defined by the table below.

x	$f(x)$	$g(x)$	$h(x)$
1	1	6	7
2	7	9	1
3	2	1	5
4	8	3	6
5	4	8	2
6	5	7	8
7	3	4	4
8	9	2	3
9	6	5	9

3. Evaluate $h(8)$.

4. Evaluate $f^{-1}(5)$.

5. Assuming f is an **even** function, evaluate $f(-9)$.

6. Assuming g is an **odd** function, evaluate $g(-4)$.

Exam: Function Reflections (Practice version 43)

7. A function, f, is **even** if $f(x) = f(-x)$ for all x in the domain. A function, g, is **odd** if $g(x) = -g(-x)$ for all x in the domain.

Let polynomial p be defined with the following equation:

$$p(x) \;=\; -x^3 - x$$

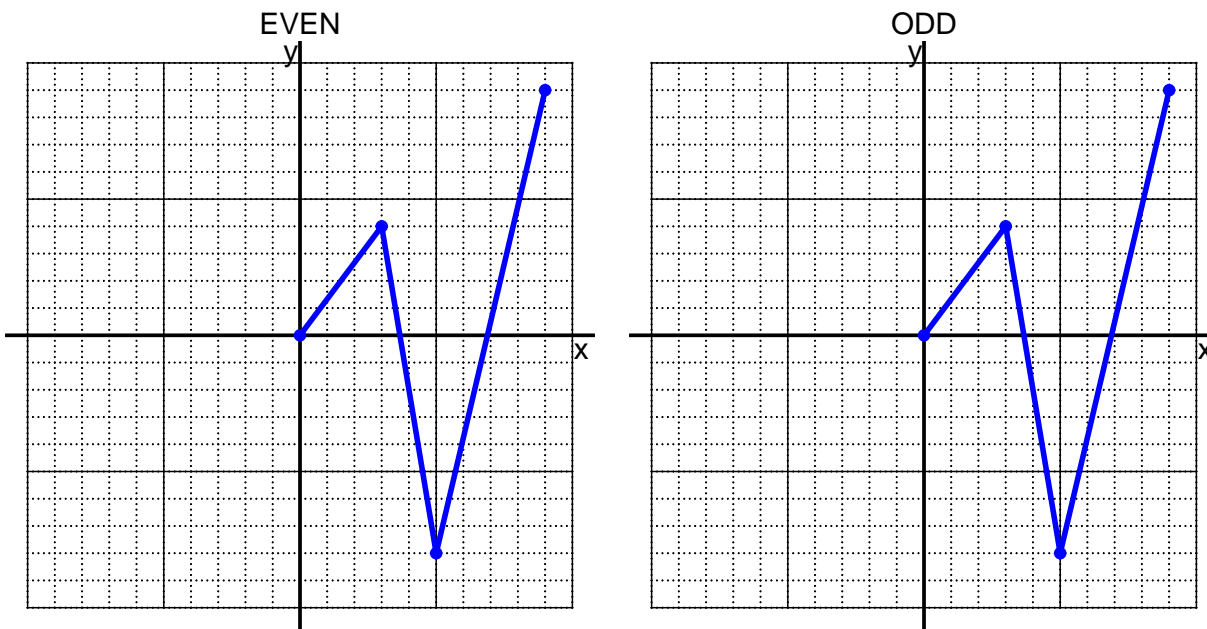   a. Express $p(-x)$ as a polynomial in standard form.

    b. Express $-p(-x)$ as a polynomial in standard form.

    c. Is polynomial p even, odd, or neither?

    d. Explain how you know the answer to part c.

Exam: Function Reflections (Practice version 43)

8. I have drawn half of a function. Draw the other half to make it even or odd.

EVEN

ODD

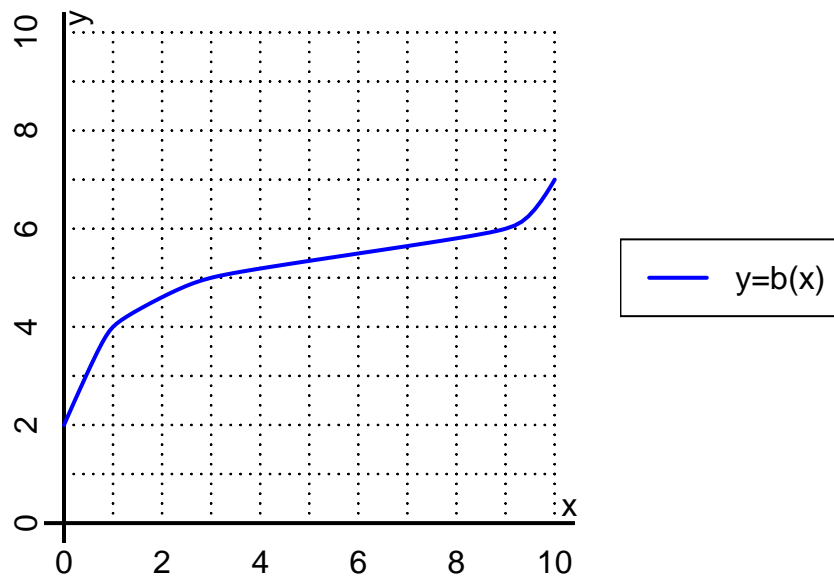9. Let function f be defined with the equation below.

$$f(x) = 9x - 5$$

a. Evaluate $f(8)$.

b. Evaluate $f^{-1}(13)$.

Exam: Function Reflections (Practice version 43)

10. The function b is represented by the curve $y = b(x)$ graphed below.

a. Evaluate $b(3)$.

b. Evaluate $b^{-1}(4)$.

Exam: Function Reflections (Practice version 43)

11. Function f is defined by the table below.

    a. Complete the columns for $-f(x)$ and $f(-x)$ and $-f(-x)$.

x	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	9			
-1	5			
0	0			
1	-5			
2	9			

b. Is function f even, odd, or neither?

c. How do you know the answer to part b?